

CLAIMS

1. A plasma generating electrode comprising a plurality of unit electrodes hierarchically layered at predetermined intervals, spaces which are open on each end in one direction and are closed on each end in the other direction being formed between the unit electrodes, the plasma generating electrode being capable of generating plasma in the spaces upon application of voltage between the unit electrodes,

each of the unit electrodes including a plate-like ceramic body as a dielectric and a conductive film disposed inside the ceramic body, the unit electrodes including a deficient unit electrode in which the conductive film is absent between one end and the other end in the one direction, and a normal unit electrode in which the conductive film is not absent,

the spaces including a plurality of normal spaces formed between the normal unit electrode and the deficient unit electrode opposite to each other or between the deficient unit electrodes opposite to each other so that a distance between the conductive films corresponds to a distance between the unit electrodes, and a plurality of deficient spaces formed between the normal unit electrodes opposite to each other with a deficient portion of the deficient unit electrode interposed therebetween so that the distance between the conductive films in the deficient space is greater than the distance between the conductive films in the normal space,

the plasma generating electrode being capable of generating different intensity of plasma in the normal space and the deficient space due to the difference in the distance between the conductive films forming the unit electrodes which generate plasma between the normal space and the deficient space.

2. The plasma generating electrode according to claim 1, wherein the deficient unit electrode is formed by omitting only a part of the conductive film forming the unit

electrode.

3. The plasma generating electrode according to claim 1, wherein the deficient unit electrode is formed by omitting a part of each of the ceramic body and the
5 conductive film forming the unit electrode.

4. The plasma generating electrode according to any of claims 1 to 3, wherein the conductive film forming the unit electrodes is constituted of a plurality of conductive film groups set at different potentials upon application of voltage, the
10 conductive film group (first conductive film group) set at a predetermined potential extending to an end of the space in the other direction, and the conductive film group (second conductive film group) set at a potential differing from the potential of the first conductive film group extending to an end of the space in the other direction,

the conductive films (first side conductive film and second side conductive
15 film) being provided on a face on the end side to which the first conductive film group extends and a face on the end side to which the second conductive film extends,

the first conductive film group being in contact with the first side conductive film to achieve electrical conduction, and the second conductive film group being in contact with the second side conductive film to achieve electrical conduction.

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5. A plasma reactor comprising the plasma generating electrode according to any of claims 1 to 4, wherein, when gas containing predetermined components is introduced into the spaces formed between the unit electrodes forming the plasma generating electrode, the plasma reactor is capable of reacting the predetermined components
25 contained in the gas by plasma generated in the spaces.

6. The plasma reactor according to claim 5, wherein, when the gas containing

the predetermined components is introduced into the spaces, a component of the predetermined components which is reacted by plasma generated in the normal space differs from a component of the predetermined components which is reacted by plasma generated in the deficient space.

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7. An exhaust gas purifying device comprising the plasma reactor according to claim 5 or 6 and a catalyst, the plasma reactor and the catalyst being disposed in an exhaust system of an internal combustion engine.